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(54) Title: PRODUCTION OF A FERMENTATION PRODUCT

(57) Abstract: A process of producing fermentation product comprising the steps of, (i) forming an acidified suspension of particulate plant derived material comprising a first polysaccharide which is more readily hydrolysable and a second polysaccharide which is more difficult to hydrolysable, (ii) allowing the first polysaccharide to undergo hydrolysis by action of the acid at a temperature of at least 50°C under conditions such that the first polysaccharide is hydrolysed and thereby forming a mixture of an aqueous liquor containing dissolved sugar and a solid residue containing the second polysaccharide, (iii) subjecting the mixture to one or more separation stages in which the solid residue and aqueous sugar liquor are substantially separated from each other, (iv) optionally washing the residue substantially free of acid and sugar, (v) adjusting the pH of the aqueous liquor to at least 4, (vi) passing the aqueous liquor from step (iv) into a fermentation stage where the dissolved sugars are acted upon by a microorganism in a fermentation broth to produce a fermentation product, (vii) contacting the second polysaccharide by an enzyme, said enzyme hydrolyses the second polysaccharide to the component sugars, and allowing the component sugars to be acted upon by a microorganism in the fermentation broth to produce the fermentation product, (viii) separating the fermentation product from the broth, characterised in that the separation stage(s) in step (iii) is/are assisted by flocculation of the solid by-product, employing one or more flocculating agent(s) selected from the group consisting of water soluble polymers, water swellable polymers and charged microparticulate material. Typically such fermentation products include for instance ethanol, glycerol, acetone, n-butanol, butanediol, isopropanol, butyric acid, methane, citric Acid, fumaric acid, lactic acid, propionic acid, succinic acid, itaconic acid, acetic acid, acetaldehyde, 3-hydroxypropionic acid, glyconic acid, tartaric acid and amino acids such as L-glutaric acid, L-lysine, L-aspartic acid, L-tryptophan, L-arylglycines or salts of any of these acids.

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